3.17 Analysis of Mending Tape - GCMS

■Explanation

Mending tape is comprised of polypropylene tape and acrylic adhesive. Analysis of samples with these two types of polymers is extremely difficult because both polymers' components are detected after thermal decomposition at 500 °C. To overcome this, and make analysis easy, thermal decomposition is performed at 350 °C where polypropylene remains intact but the acrylic adhesive decomposes and then the sample is thermally decomposed at 450 °C to produce just a thermal decomposition chromatogram of polypropylene.

■Analytical Conditions

Instrument	: GCMS-QP5000 PYR-4A
Column	: DB-1 0.25mm × 30m df 0.25 μm
Col.Temp.	: 50 °C (1min)-300 °C (10 °C/min)
Inj.Temp.	: 300 °C
I/F Temp.	: 320 °C
Carrier Gas	: 100kPa (1min)-150kPa (2kPa/min)-250kPa (5kPa/min)
Split Ratio	: 1 : 10

References

Application News No. M174

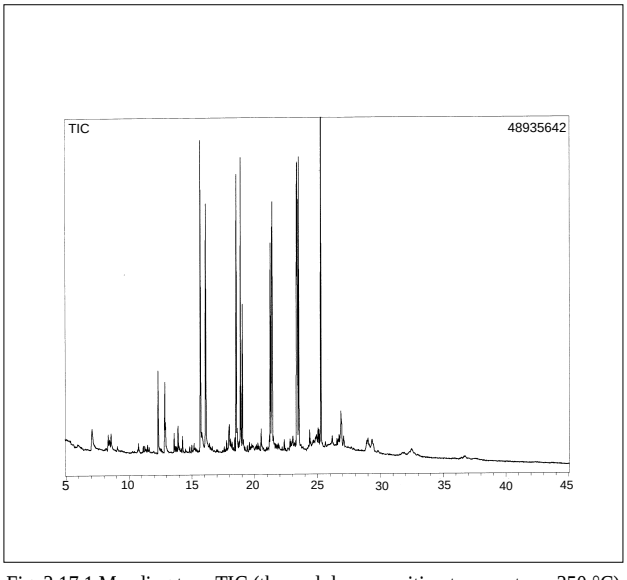

Fig. 3.17.1 Mending tape TIC (thermal decomposition temperature: 350 °C)

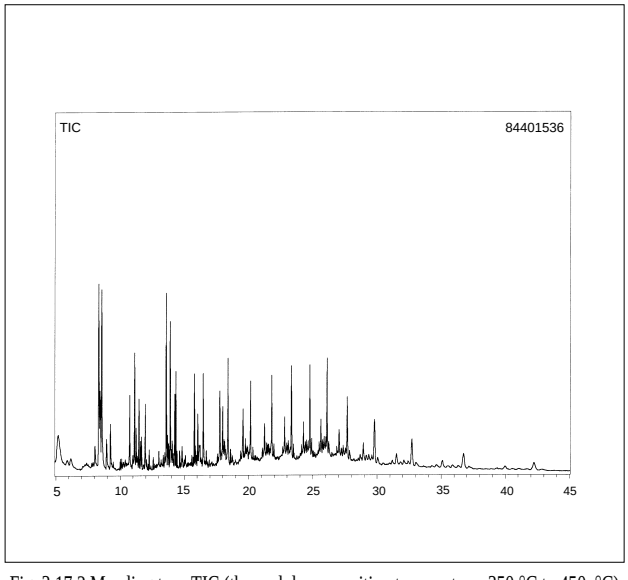

Fig. 3.17.2 Mending tape TIC (thermal decomposition temperature: 350 °C to 450 °C)